Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Reliability and Continuity of Communications Networks, Including Broadband Technologies	)	**PS Docket No. 11-60**
	)	
Effects on Broadband Communications Networks of Damage or Failure of Network Equipment or Severe Overload	)	**PS Docket No. 10-92**
	)	
Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks	)	**EB Docket No. 06-119**

REPLY COMMENTS OF THE EDISON ELECTRIC INSTITUTE

EDISON ELECTRIC INSTITUTE

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September 1, 2011

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I. Introduction and Summary of Position

The Edison Electric Institute ("EEI"),[1] on behalf of its member companies, submits these reply comments in response to the Commission's Notice of Inquiry ("NOI") issued in the above-captioned dockets on April 7, 2011.[2] As discussed in EEI's initial comments in this proceeding,[3] reliability, resiliency and continuity of communications networks and services are of great consequence to EEI members as providers of critical utility services and as end-users of

[1] EEI is an association of the United States investor-owned electric utilities and industry associates worldwide. Its U.S. members serve nearly 95 percent of all customers served by the shareholder-owned segment of the U.S., about 70 percent of all electricity customers, and generate about 70 percent of the electricity delivered in the U.S. EEI frequently represents its U.S. members before Federal agencies, courts and Congress in matters of common concern, and has filed comments before the Commission in various proceedings affecting the interests of its members. Since EEI's members are end-users of commercial communications networks, EEI has a strong interest in the above-referenced proceeding to examine issues regarding the reliability, resiliency and continuity of communications networks.

[2] *In the Matter of Reliability and Continuity of Communications Networks, Including Broadband Technologies; Effects on Broadband Communications Networks of Damage or Failure of Network Equipment of Severe Overload; Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks,* Notice of Inquiry, PS Docket Nos. 11-60 and 10-92, EB Docket No. 06-119, FCC 11-55 (April 7, 2011) ("Reliability NOI").

[3] EEI July 7, 2011Comments ("EEI Initial Comments").

commercial communications systems.[4] Electric utilities use communications networks and services to carry out their core mission of safely and reliably delivering electric service to most, if not all, of the nation's residential and business consumers. In this regard, reliable communications networks are essential to utility operations, and are necessary for the provision of safe, reliable electric service in even the most inclement conditions.

Carriers and others in the communications industry indicate in their comments in this proceeding that commercial networks enjoy a high level of reliability, that the communications industry has taken steps to address and manage network reliability issues, and that carriers operate their networks with an eye towards industry standards and best practices.[5] EEI generally agrees that the communications industry maintains a quality level of reliable service on commercial networks, and applauds the industry for its efforts to further refine and develop standards and best practices.[6] However while carriers build and operate reliable commercial networks which are more than sufficient to meet the needs of their core business and consumer base, these networks at times fall short of meeting the exacting reliability needs of the electric utility industry, as outlined below, in its provision of critical services in all environments.

As discussed below, a level of carrier reliability designed to meet general business and consumer needs does not always translate into reliability and resiliency adequate to meet the operational needs of electric utilities as owners and operators of critical infrastructure. Electric utilities and commercial carriers operate under wholly different business models from carriers,

[4] *See, e.g.,* Comments of the Edison Electric Institute, PS Docket No. 10-92 (filed June 25, 2010); *see also* Reply Comments of the Edison Electric Institute, PS Docket No. 10-92 (filed Sept. 2, 2010).

[5] *See, e.g.,* Verizon Comments at 3-6, 9, 11-12, 13; AT&T Comments at 9-10, 14-15; US Telecom Comments at 2; National Cable and Telecommunications Association Comments at 3; T-Mobile Comments at 2; Telecommunications Industry Association Comments at 7, 10-19; The Alliance for Telecommunications Industry Solutions Comments at 5-7, 17-19; CenturyLink Comments at 2, 4-8, 14-16, Attachments I and II.

[6] *See, e.g.,* AT&T Comments at 4-5, 13-17; T-Mobile Comments at 2, 17-18; Telecommunications Industry Association Comments at 7, 10-19.

and utilities have unique operating needs which set them apart from more typical business and consumer users of commercial networks. In many ways, electric utilities are more in line with public safety and first responders and require communications networks which ensure availability of service. Even fractional delays in the delivery of necessary services can have devastating impacts on an electric utility's ability to maintain or restore services. While carriers indicate that their networks perform at 99 percent reliability,[7] it is in the remaining fraction of downtime – which typically will occur during or immediately following natural or man-made events – when utilities are most reliant on communications in order to restore critical services and to protect the safety of utility field crews and the general public. For these reasons, electric utilities require a more resilient communications system tailored more closely to their individual and unique business needs while maintaining a capability to restore failed systems in line with their strategic restoration needs, which often do not align with the needs of the greater commercial customers which they primarily serve.

While a one-size-fits-all regulatory solution to address these issues may not be optimal, collaboration between utilities and carriers is crucial. To this end, EEI urges the Commission to promote continued and expanded collaboration between these industries and to take steps to ensure that utilities have an opportunity to provide input into the development and refinement of communications industry best practices and standards. While improving the reliability and resiliency of commercial communications networks to meet the high standards of the utility industry is an important goal that will promote the use of commercial systems where it makes technical, logistical and economic sense for utilities to do so, the Commission should not lost

[7] *See* Verizon Comments at 7; AT&T Comments at 10. AT&T states that its U.S. IP network performed at 99.9990 percent reliability in 2010, and its traditional long distance time division multiplexing ("TDM") network performed at 99.9948% .

sight of the fact that utilities ultimately depend on their own private internal communications networks to ensure the safe, reliable and efficient delivery and restoration of power to the public at large. In that regard, EEI underscores that the Commission must ensure that utilities have access to suitable, auction-exempt spectrum to support their private internal wireless communications networks.

II. The Commission Should Work to Promote Cross-Industry Collaboration In Development of Communications Standards and Best Practices and Should Ensure That Utilities Have Access to Adequate Spectrum.

In light of the differing communications reliability needs of utilities and consumers, a generic approach to network reliability issues is not optimal, nor is adoption by the Commission of proscriptive industry-wide rules. As indicated above, carriers maintain reliable networks which satisfy the needs of their core customers. It stands to reason that networks serving mobile phone and internet users may not require or desire the same level of reliability as entities such as electric utilities that manage critical infrastructure or respond to emergencies. However, while electric utilities may represent a portion of commercial network users, they nonetheless are a critically important segment. Given the unique interest of the electric utility industry in the reliability of commercial communications networks, EEI urges the Commission to take steps to ensure the electric utility industry is a participant in the development and refinement of communications industry standards and best practices.

While it is clear that the communications industry is engaged in implementing and developing such practices and standards, EEI believes there must be a seat at the table for utilities in this process. Encouraging electric utilities and carriers to collaborate in this manner with respect to communications network standards development would be to the advantage of both industries and would go far to ensure that commercial communications networks provide a

level of reliable service that satisfies the needs of utilities, who work alongside and share much in common with public safety entities, in the provision of critical utility services. EEI urges the Commission to work with the communications and utility industries to establish clear avenues for such collaboration and input. As a starting point, EEI believes that the Commission should convene an industry conference to look closely at these issues and to establish a comprehensive and transparent path forward

EEI also urges the Commission to ensure that utilities have access to adequate spectrum such that they may develop their own communications networks which satisfy their reliability needs.[8] Comments of AT&T and others indicate that enterprise customers rely to varying extents on their own networks to avoid single points of failure.[9] EEI agrees. Because, as discussed above, commercial networks generally do not meet the reliability and security standards of utilities, private internal networks likely will be essential in some areas. Availability of adequate spectrum will ensure that electric utilities can maintain flexibility to deploy private networks which address their unique needs, while also allowing utilities to utilize commercial networks as their communications needs require. Further, access to spectrum by utilities is in the interest of the general public to the extent it permits utilities to develop networks

[8] Electric utilities' spectrum needs are detailed in EEI's comments in response to the Department of Energy's request for information regarding utility communications requirements. *See* Comments of EEI, Department of Energy, *Implementing the National Broadband Plan by Studying the Communications Requirements of Electric Utilities to Inform Federal Smart Grid Policy* (July, 2010), available at http://www.gc.energy.gov/documents/EdisonElectric_Comments_CommsReqs.pdf; *see also* Reply Comments of EEI (August 2010), available at http://www.gc.energy.gov/documents/Edison_Reply_Comms.pdf. EEI reaffirms its position taken in those comments regarding electric utilities' need for dedicated spectrum to meet their current and future communications needs.

[9] *See* AT&T Comments at 19; *see also* Verizon Comments at 17 (stating, "[i]n the enterprise space, businesses, too, should take steps to establish alternative means of communications; purchase diverse services for mission critical sites or applications; consider maintaining duplicate "hot sites" from which key data and applications can be accessed in the event of an outage at the primary site; and other such measures.").

in line with their unique business needs, and enables utilities to operate and to restore critical services in a timely manner.

Further, an approach which allows utilities access to spectrum and, in turn, enables utilities to develop their own internal communications networks, will go far in advancing the interests of the public generally by ensuring against the creation of additional interdependencies between different parts of the nation's critical infrastructure: namely, between the electric power industry and the commercial communications industry.

EEI notes, however, that there is a need for multiple options to be available to electric utilities in meeting their communications needs, including use of private wireless as well as commercial solutions. To this end, EEI urges the Commission to avoid taking any action which may inhibit or prohibit the scope of communications options available to electric utilities. Utilities will continue to make sound business decisions when choosing communications options for their critical needs, and commercial networks must be included in that consideration.

III. Reliable, Resilient Communications Networks in All Conditions are Essential to Electric Utilities, Who Provide a Critical Service and Who Share Much in Common with Public Safety Entities and First Responders.

Reliable and resilient communications networks are essential to electric utilities' operations as they carry out their core mission of providing safe, reliable electric service, and are necessary to meet public safety needs. Electric utilities have a mandate to serve the public interest and provide critical utility services that are relied on by most, if not all, of the nation's residential and business consumers. Not only must electric utilities be prepared to provide these services under normal conditions, in times of disaster utilities must maintain or quickly restore critical services. Maintaining an adequate level of reliability during major events which impact the grid – natural and otherwise – is in the interest of public safety, as reliable power is needed

for government and public safety facilities, hospitals, transportation, military facilities and other critical infrastructure. It is in the national interest, then, that communications networks relied on by electric utilities remain reliable and resilient at all times.

In order to ensure the safety of the general public and utility service crews, communications systems relied on by electric utilities must provide sufficient coverage and capacity under any condition, particularly after natural or man-made disasters when, in the experience of utilities, other forms of communications often become overburdened and unreliable due to back-up power and capacity issues. Reliable communications systems are vital to support utilities' critical operational needs and, in particular, to support maintenance, remote control and monitoring, as well as dispatch of, and communication with, utility field crews in service territories. Electric utilities further depend on communications networks for locating outages or other problems, and for transmitting to field crews various types of information which are critical for service restoration. In addition, utilities rely on communications networks for internal communications between utility offices to improve operational efficiency and to quickly and effectively respond to major events. Reliable communications systems, then, are vital for overall grid security and are needed to support applications which are necessary for the safe, reliable and efficient delivery of electricity.

Reliable networks are essential to support utility responsibilities during emergencies when utility service crews in the field are working to maintain or restore electric service. In these instances, utilities work closely with public safety entities and first responders and, therefore, require communications networks to operate at a level of reliability expected of networks that support first responder communications. To be sure, electric utilities and public safety entities have a long track record of working closely together in the public interest and it is

reasonable, then, that the reliability of their communications systems are better aligned. Utilities also need reliable communications systems to enable their coordination with other utilities during and immediately following major events as they engage in mutual assistance and coordinated response efforts.

Beyond this, the provision to the public of safe and reliable electric service is an extremely complex endeavor and an essential responsibility. In this task, electric utilities have expansive communications needs because they typically have extensive infrastructure that requires maintenance, remote control and monitoring. Utilities must be prepared to offer safe and reliable service ubiquitously even in the most rugged and remote areas which may not adequately be served by telecommunications providers, particularly larger carriers. Furthermore, electric utilities are held accountable by their state regulators for loss of power events. Moreover, given these mandates, as well as federal and industry standards, electric utilities must have a very high level of communications coverage throughout their service territories in order to cover utility assets and operations. Communication service providers are not held to the same level of accountability.

Electric utilities provide critical services at all times, in both ongoing and emergency situations. Further, the electric utility industry is a well-recognized critical infrastructure industry ("CII")[10] which relies on communications for the protection of life and property – whether to control or monitor generation, transmission and distribution so as to maintain reliable

[10] *See* Critical Infrastructures Protection Act, 42 U.S.C. § 5195c(b)(2) (finding that "[p]rivate business, government, and the national security apparatus increasingly depend on an independent network of critical physical and informational infrastructures, including. . . energy…"); National Infrastructure Protection Plan, Department of Homeland Security, at 15-16, 23, 55, 132 (2009), available at http://www.dhs.gov/xlibrary/assets/hr_5005_enr.pdf. Moreover, Department of Defense documents have identified electric utility infrastructure as critically important to key military facilities, and have indicated that loss of power to those facilities could have significant public safety concerns. See GAO, Defense Critical Infrastructure: Actions Needed to Improve the Identification and Management of Electrical Power Risks and Vulnerabilities to DOD Critical Assets, GAO-10-147, at 22 (October 2009), available at http://www.gao.gov/new.items/d10147.pdf.

power, or to coordinate restoration. As a CII, then, electric utilities must have highly reliable communications networks. The Commission itself has noted as much, stating that utilities use communications "as a critical tool for responding to emergencies that could impact hundred or even thousands of people. . . Any failure in their ability to communicate by radio could have severe consequences on the public welfare . . . utility companies need to possess the ability to coordinate critical activities during or following storms or other natural disasters that disrupt the delivery of vital services to the public such as provision of electric, gas, and water suppliers."[11]

Electric utilities further rely on communications networks to facilitate the natural restoration of electric service. Among other things, this includes the use of voice-over-internet ("VoIP") and other technologies which facilitate the more effective dispatch of utility field crews. In general, the use of reliable communications to support utilities' efforts to improve their core infrastructure, including network security and cyber security, will provide greater electric service reliability.

Finally, communications networks relied on by utilities must also offer a sufficient level of coverage across utilities' service territories. Utility crews often work in difficult and dangerous conditions, at times in remote areas. It stands to reason that the land mobile systems on which they rely must provide sufficient geographic coverage and available capacity to allow crew communications at anytime, under any conditions, and particularly after major events when other forms of communications are disrupted.

IV. While Electric Utilities Generally Agree That Carriers Provide Reliable Service, Utilities' Concerns Regarding Their Communications Requirements Remain.

[11] *Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services*, PR Docket No. 92-235, *Second Report and Order*, 12 FCC Rcd 143, 14329 (1997).

In their comments in this proceeding the telecommunications industry indicates that commercial communications networks are reliable and that the telecommunications industry has and continues to take steps to address network reliability issues. According to the United States Telecom Association ("US Telecom"), its members have successfully engaged in efforts to respond to changes in broadband usage patterns, and have demonstrated resiliency and robustness of their networks during several large scale emergencies in recent years.[12] The Alliance for Telecommunications Industry Solutions ("ATIS") comments that there are broad industry efforts underway aimed at business and operational continuity and disaster recovery.[13] Verizon adds that it endeavors to maintain well over 99 percent availability for its broadband network infrastructure and regularly achieves this that goal. Verizon states that it tracks its performance against its internal goals, and makes network changes (e.g., purchasing of new equipment; augmenting network capacity) to manage increased consumer demand for bandwidth.[14] AT&T notes that its U.S. IP network performed at 99.9990 percent reliability in 2010, and states that it collaborates regularly through industry working groups, committees and standards development organizations to help develop best practices and voluntary guidelines to help prevent or mitigate network disruptions.[15] According to T-Mobile, more than 800 industry best practices are in place, many of which speak to redundancy and reliability issues.[16]

Notwithstanding the claims of the communications industry, utilities nonetheless remain concerned with the overall reliability of commercial networks and the ability of carriers to timely

[12] US Telecom Comments at 2.

[13] Verizon Comments at 4.

[14] *Id*. at 7-8.

[15] AT&T goes on to identify several industry standards development organizations that, AT&T states, have substantial experience developing, modifying and implementing best practices that are adaptable to the variety of circumstances addressed by service providers. AT&T Comments at 7-8, 10.

[16] T-Mobile Comments at 5-7.

and effectively restore communications on these networks following major events. Central to these concerns are several deficiencies in commercial networks, as highlighted by EEI in its initial comments in this proceeding,[17] and further discussed below: (1) insufficient overall system reliability; (2) lack of adequate backup power, or fuel for backup power; and (3) insufficient priority service. While utilities' concerns focus principally on reliability issues within commercial communications networks, lack of adequate coverage by these networks remains a major impediment to utilities' ability to comfortably rely on commercial networks to meet their communications needs

While comments submitted in this proceeding from various quarters of the communications industry touch upon these issues,[18] as discussed below, they fall short of adequately addressing utilities' concerns and do not reassure utilities that these issues will be resolved such that utilities' communications requirements can be met.

A. Overall Reliability of Service

Carriers in their comments indicate that they endeavor to maintain well over 99 percent availability for commercial network infrastructure.[19] AT&T in particular notes that its U.S. IP network performed at 99.9990 percent reliability in 2010.[20] However this level of reliability would prove inadequate for electric utilities to the extent the remaining unavailability occurred at a time when utilities are working alongside public safety entities to restore critical utility

[17] EEI Initial Comments at 5-7.

[18] *See, e.g.,* AT&T Comments at 10, 19; TIA Comments at 6-8; Verizon Comments at 14-15; CenturyLink Comments at 8-10, 13; ATIS Comments at 9-12, 15; T-Mobile Comments at 7-9; National Cable & Telecommunications Association at 5-6.

[19] *See, e.g.,* AT&T Comments at 10; Verizon Comments at 4, 7.

[20] AT&T goes on to identify several industry standards development organizations that, AT&T states, have substantial experience developing, modifying and implementing best practices that are adaptable to the variety of circumstances addressed by service providers. AT&T Comments at 10.

services. Such efforts, of course, are most likely to occur following major events when commercial communications networks are most susceptible to downtime and reliability issues. It is at these times, however, that utilities are most reliant on communications services to carry out their core mission, as well as to protect the lives of the general public and to ensure the safety of utility field crews.

Electric utilities simply do not have the luxury of time, and cannot wait alongside business and residential communications subscribers for commercial services to be restored. Timely restoration of service demands that utility field crews be dispatched immediately, and a failure of communications networks at such a critical moment may result in a meaningful safety risk to the general public and to field crews as they endeavor to restore electric service. Further, lack of communications services generally results in delayed response times, which has a negative impact on public safety, the health and safety of utility customers, and critical infrastructure. As well, delayed response times which typically result from a lapse in commercial communications service have a negative impact on utility performance metrics which, unlike benchmarks within the telecommunications industry, are measured based on system downtime.

B. Backup Power

Backup power within commercial communications networks remains a chief concern for utilities. In the experience of electric utilities, commercial networks too often lack sufficient backup power or fuel for backup power which is needed to maintain communications in areas where electric service has been knocked out. This is particularly problematic to utilities, which rely on communications networks during and immediately following major events – times when electric service is most likely to be disrupted.

According to the Telecommunications Industry Association ("TIA"), communications providers have on their own initiative worked for years towards ensuring network dependability which, TIA states, has resulted in increasingly resilient and reliable networks.[21] TIA adds that a variety of backup power systems exist that maintain service when power is otherwise unavailable, and that most critical facilities, including data centers, already have backup power.[22] While EEI agrees with TIA that factors aside from backup power contribute to communications reliability, this does not negate the need for the Commission to examine the extent to which carriers have implemented backup power. In short, the Commission has to start somewhere. To the extent there are other factors that the Commission should consider in addition to backup power, EEI supports TIA. Moreover, EEI agrees with TIA that there are options for providing backup power beyond lead batteries.[23] However this, too, should not preclude or prevent the Commission from investigating the extent to which carriers have implemented any form of backup power at their facilities.

Verizon also refers to the existence of a flexible, best-practices approach to backup power.[24] EEI recognizes that backup power systems may well be implemented by carriers at various locations along their networks. The issue, however, is the sufficiency of that backup power and, in particular, the ability of such power to maintain reliable communications in all areas where power has been knocked out, and for a necessary period of time until power has been reestablished.

[21] TIA Comments at 6.

[22] *Id*, at 6-8.

[23] *Id*, at 7-8 (describing other types of backup power in addition to lead batteries).

[24] Verizon Comments at 14.

It bears mentioning that typically commercial carriers do not restore power to their own networks until after electric power is restored by utilities. Therefore, utilities often do not rely on commercial networks as they work to restore their own grids. According to the "Long Term Outage Study" developed by the National Communications System of Principals, the "vulnerability of communications is revealed during power outages that extend beyond 48 hours or are especially widespread." The study went on to indicate:

> For power outages lasting from 24 to 96 hours over a wide geographic area, the possibility of service disruption increases substantially for the following reasons: (i) the communications provider may exhaust its capacity to provide mobile generators and replacement batteries to all the RT sites, and (ii) fuel supplies will become scarce. For power outages lasting longer than 96 hours, the ability to implement emergency plans to (i) deploy portable generators for extra power, (ii) provide mobile cell sites for auxiliary communications, and (iii) obtain regular fuel supply will determine the continuity of communications service.[25]

Also, since communications service providers often rely on electric utility infrastructure to co-locate their facilities, in some instances they are unable to rebuild their facilities until after the electric utility has repaired the infrastructure. To the extent electric utilities are made to rely exclusively on commercial communications networks, this, of course, would place utilities in a dangerous "Catch 22," whereby they would be reliant, for mission-critical power restoration purposes, on commercial wireless networks which were themselves inoperable due to the loss of the power which the utilities were seeking to restore. Utilities' concerns on this issue focus predominately on commercial wireless networks.

Sufficient backup power within commercial networks remains a concern for electric utilities – one which is only accentuated by comments in this proceeding which suggest that

[25] *Long Term Outage Study*, Communications Dependency Electric Power Working Group, National Communications System of Principals at 26-27 (Feb. 17, 2009).

commercial networks do not possess a level of backup power adequate to ensure utilities that commercial communications networks will be available in all conditions. Indeed the "flexible approach" to backup power to which Verizon refers[26] gives electric utilities cause for concern, especially in view of the defined, rigorous approach to backup power adopted throughout the electric utility industry. As the Department of Energy ("DOE") recognized in its report detailing utility communications requirements in connection with Smart Grid technologies,[27] "many utility facilities, in addition to being able to withstand extreme weather conditions, have backup power for 72 hours."[28] This stands in stark contrast to Verizon's urging in the instant proceeding that the Commission not impose requirements of a minimum 24-hours of backup power for central office assets and eight hours for other locations (e.g., cell sites, remote switches and digital loop carrier system remote terminals ("DLCs")).[29] Yet the DOE in its Communications Report acknowledged in no uncertain terms that "[a]ll [utility communications] sites must have batteries with an absolute minimum capacity of eight hours and a generator with on-site fuel capable of powering the site for several days."[30] According to the DOE, utility back-up power needs can be even more substantial depending upon location and application. For instance, the DOE stated in its Communications Report that "[s]ome remote utility sites have propane tanks with enough fuel to power the site for weeks."[31]

[26] Verizon Comments at 14, 16.

[27] *Communications Requirements of Smart Grid Technologies*, DOE (Oct. 5, 2010) ("DOE Communications Report").

[28] DOE Communications Report at 44.

[29] Verizon Comments at 14-15.

[30] DOE Communications Report at 44 (quoting Southern Company Services, Inc. July 12, 2010 Communications Requirements Comments at 26).

[31] *Id*. at 44 (quoting Utilities Telecom Council July 12, 2010 Communications Requirements Comments at 12).

Therefore, simply having communications network components on a battery or generator back-up power that lasts several hours is insufficient for utilities. Utilities and CII must have reliable communications systems to meet their unique needs, and a critical element of any reliable system is sufficient backup power which can ensure operation of communications systems for, if needed, an extended duration.

C. Priority of Service

Another important communications requirement and ongoing concern for utilities is their need for priority access to communications networks over consumers.[32] Priority access to commercial networks remains a significant issue for electric utilities, whose critical operations require some level of assurance from carriers that utilities will have priority access to these networks over consumers, especially during an emergency. However utilities often do not receive adequate priority service from commercial carriers and, in many instances, commercial networks simply do not prioritize data traffic. While wireline networks may prioritize data traffic, wireless networks do not offer similar capabilities. Further, utilities have found that while they often do not receive priority routing in urban areas, this service is altogether unavailable in more rural areas. This in turn greatly complicates the ability of utilities – which operate in both urban and rural environments – to rely on commercial networks for their stringent communications needs.

While some commenters[33] reference service level agreements ("SLAs"), which often are used to commit a communications service provider contractually to a certain level of service, EEI notes that there are inherent limitations to commercial contracts for priority service. SLAs

[32] *See id.* at 47.

[33] *See, e.g.*, AT&T Comments at 19.

and similar private contracts simply do not provide a sufficient guarantee to utilities that they will have unfettered access to commercial networks at those crucial times when public safety is at risk. In particular, the typical recourse for a carrier's violation of an SLA is limited to monetary damages, which often times is not an appropriate remedy in view of the impacts such a violation are likely to have on a utility's functions during or in the aftermath of an emergency, or on a utility consumer's loss of electricity service. Further, SLAs routinely contain force majeure provisions which allow carriers to avoid their service level commitments under SLAs in instances of major events – when utilities are most reliant on these networks. This arrangement by accounts negates any benefit SLAs might otherwise provide to utilities.

D. Coverage

While reliability of commercial networks is the primary concern for electric utilities, the level of coverage provided by these networks remains troublesome. Electric utilities require a high level of coverage over the geographic expanse of their service territories. This is particularly true of wireless communications that maintain connectivity with critical assets and utility field crews.[34] As a result, communications networks relied on by utilities must operate in all locations, even in isolated and remote areas with few, if any, residents. However, while utilities rely on commercial communications solutions offered by carriers, often networks operated by carriers do not reach remote and sparsely-populated areas where electric utilities provide service or where they purposefully locate generation and other facilities away from population centers.[35]

[34] *See A Study of Utility Communications Needs*: Key Factors That Impact Utility Communications Networks, Utilities Telecom Council at 14 (2010) ("UTC Study").

[35] *Id*.

While some carriers in the past have indicated that their wireless networks reach nearly the entire population of the United States,[36] some statistics reveal that the geographic reach of these commercial networks is in reality as low as 63 percent land mass coverage across the nation.[37] This, of course, is not a sufficient level of geographic coverage to meet utility needs. Further, unlike carriers, electric utilities must serve all – not simply most – of their customers and all of their service territories, including those remote areas which are not covered by wireless networks.

V. Electric Utilities' Unique Need for Reliable Communications Networks Often Does Not Align With the Reliability Needs and Business Model of Commercial Carriers.

While commercial communications networks are reliable, and while carriers operate pursuant to industry standards and business practices,[38] their networks are built with a different customer in mind and simply do not offer a level of reliability or coverage required by electric utilities to support their critical operations and to ensure public safety, as discussed above. Commercial networks are designed to meet the needs of general business and residential consumers, and are not necessarily designed or built to provide the levels of reliability, survivability, availability and/or coverage that are necessary to meet utilities' communications needs, particularly in times of emergency. Commercial wireless networks in particular tend to be insufficient for utility reliability requirements and, as discussed above, lack an adequate level of backup power sufficient to meet utilities' needs.

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[36] *See* comments of CTIA—The Wireless Association at 8, in DOE Notice of Inquiry Proceeding regarding Utility Smart Grid Communications Requirements.

[37] See UTC Study at 14.

[38] *See, e.g.,* Verizon Comments at 3-6, 9, 11-12, 13; AT&T Comments at 9-10, 14-15; US Telecom Comments at 2; National Cable and Telecommunications Association Comments at 3; T-Mobile Comments at 2; Telecommunications Industry Association Comments at 7, 10-19; The Alliance for Telecommunications Industry Solutions Comments at 5-7, 17-19; CenturyLink Comments at 2, 4-8, 14-16, Attachments I and II.

The issue is one of differing reliability needs and objectives. Commercial carriers and electric utilities have differing needs and demands with respect to the reliability and resiliency of communications systems. Both design and build systems to accommodate the needs of their core business and residential subscribers and, when major events occur, both focus their efforts where the greatest impact can be felt. However, the system needs of electric utilities and commercial carriers with respect to reliability typically do not converge. As a result of these differences, commercial communications systems typically do not offer a level of reliability that is suitable for utility communications needs for various reasons. This in turn leads to a number of problems for utilities, which are of much consequence.

When commercial communications networks go down, critical utility systems frequently are impacted, and all too often are placed in a restoration queue that in turn requires utilities to revert to manual restoration of systems. Such delays greatly protract utility system outages which, in turn, endanger the safety and lives of utility customers, field crews, and the general public. This also threatens consumer confidence in electric utilities and in the ability of utilities to achieve needed grid improvements. Further, as discussed below, commercial networks become overloaded and can be unavailable during and in the aftermath of emergencies and major events. Utilities, as CII, must have a communications system they can depend on, and most commercial systems are not designed to withstand major events, nor do they have the battery-back-up CII need to communicate in areas where power has been knocked out.

The simple fact is that communications systems relied on by utilities must operate at a higher level of reliability than is typical of commercial networks, namely because utilities must comply with rigorous mandatory and enforceable electric reliability standards pursuant to the

EPAct 2005.[39] Under EPAct 2005, the Federal Energy Regulatory Commission ("FERC") and the North American Electric Reliability Corporation ("NERC") have adopted mandatory and enforceable reliability standards for electric utilities, including cyber security standards. Compliance with these standards requires utilities to have reliable, secure communications systems capable of handling large amounts of data and traffic with an extremely low level of latency. This in effect means that utilities' communications systems must work twenty-four hours a day, seven days a week, and 365 days a year at a very high level of reliability to the needs of the country. This is especially the case during service outages, natural or man-made disasters or other emergency situations.

Such demanding requirements means that utility and CII operations have little or no margin for potential interference, interruption or diminution of their critical communications services. Keeping the lights on is a core value of every utility – before, during and after major events. It is imperative, then, that communications services on which utilities rely – for voice communications with crews as well as for command and control of equipment and protective devices – remain operational. These services are essential to ensure utilities can evaluate and respond to major events.

Similarly, during non-major events, electric utilities must have the confidence that the communications services they depend on are reliable and will remain operational. This is particularly true in light of state Public Utility Commissions' evaluation of various reliability data and customer satisfaction data in deciding rate requests and allowing utilities to recover costs of implementing performance improvement programs. Electric utility field crews also require effective and reliable communications throughout service territories at all times, to

[39] Energy Policy Act of 2005, Pub. L. No. 109-58.

enable utilities to communicate with crews performing maintenance, storm recovery, or other essential work.

Despite these issues electric utilities remain cognizant of the quality of service provided by commercial carriers, and recognize that utility communications at times are not of the highest priority during major events that impact both carriers and utilities. It is precisely for this reason that electric utilities need the ability to ensure reliable and resilient communications networks are available to support utilities' operations in order to ensure the ability of utilities to carry out their critical services and to meet public safety needs.

It is apparent that reliable networks – such as those built and operated by commercial carriers – do not always translate into networks which satisfy the divergent reliability needs of carriers and utilities. As discussed above, electric utilities have exacting needs for reliable communications systems, and commercial networks do not offer a level of reliability or coverage required by electric utilities in their provision of critical services.

VI. Conclusion

WHEREFORE, for the foregoing reasons, EEI respectfully requests that the Commission consider these reply comments and ensure that any Commission action taken with respect to communications network reliability is consistent with them.

Respectfully submitted,

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Dated: September 1, 2011